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THE DEPARTMENT OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE, CS DIVISION

Presents the Spring 2014 EECS Distinguished Seminar Series

Dr. Sartaj Sahni
University of Florida

"Green Computing"
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ABSTRACT

For decades, computer scientists and engineers have focused on the development of economical computer systems (hardware and software) that are able to solve problems of interest in an acceptable amount of time. Their success in doing this has resulted in an IT industry that accounts for an increasing share of the world's energy utilization and an increasing share of global carbon dioxide emissions. The current growth rate in energy consumption and carbon dioxide emissions is not sustainable. Sustainability is a new focus for computer systems. Green Computing is concerned with reducing the negative impact that the IT industry is having on the environment. An important impact of the Green Computing revolution on computer scientists and engineers is the addition of energy as a metric in the evaluation of computer systems. Today, we are concerned with the development of economical computer systems that are able to solve problems of interest in an acceptable amount of time and using a minimal amount of energy. This talk will first make the case of Green Computing and then illustrate how algorithmic techniques and trends in the consumer electronics/gaming industries are enabling Green Computing. Illustrative examples include the use of GPUs to reduce the cost of scientific computing.

BIOGRAPHY

Sartaj Sahni is a Distinguished Professor of Computer and Information Sciences and Engineering at the University of Florida. He is also a member of the European Academy of Sciences, a Fellow of IEEE, ACM, AAAS, and Minnesota Supercomputer Institute, and a Distinguished Alumnus of the Indian Institute of Technology, Kanpur. In 1997, he was awarded the IEEE Computer Society Taylor L. Booth Education Award ``for contributions to Computer Science and Engineering education in the areas of data structures, algorithms, and parallel algorithms'', and in 2003, he was awarded the IEEE Computer Society W. Wallace McDowell Award ``for contributions to the theory of NP-hard and NP-complete problems''. Dr. Sahni was awarded the 2003 ACM Karl Karlstrom Outstanding Educator Award for ``outstanding contributions to computing education through inspired teaching, development of courses and curricula for distance education, contributions to professional societies, and authoring significant textbooks in several areas including discrete mathematics, data structures, algorithms, and parallel and distributed computing.'' Dr. Sahni has published over three hundred research papers and written 15 texts. His research publications are on the design and analysis of efficient algorithms, parallel computing, interconnection networks, design automation, and medical algorithms.   He is presently the Editor-in-Chief of ACM Computing Surveys.

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